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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,809	01/11/2002	Mark Pavier	IR-1839	2069

2352 7590 07/09/2003

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EXAMINER

CAO, PHAT X

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 07/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/045,809

Applicant(s)

PAVIER ET AL.

Examiner

Phat X. Cao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 16-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Election/Restrictions***

1. Applicant's election without traverse of Group I, claims 1-15 in Paper No. 4 is acknowledged.

***Claim Rejections - 35 USC § 112***

2. Claims 4 and 9-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 10 recites the limitation "the elongated sides" in line 2. There is insufficient antecedent basis for this limitation in the claim.

- Claim 4 recites the limitation "the elongated sides" in line 3. There is insufficient antecedent basis for this limitation in the claim.

- Claim 9 recites the limitation "the elongated rails" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fillion et al (US. 5,637,922) in view of Kasem et al (US. 6,249,041).

With respect to claims 1-3 and 12-15, Fillion (Figs. 2 and 5) discloses semiconductor package comprising: a semiconductor die 12 having opposite

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surfaces; a lead frame (18,16) lying in a plane and having a strap 26a cupped out of the plane of the lead frame to provide a nest, which is sized to receive the silicon die 12, an inner surface of the strap 26a in electrical contact with a source contact 14a on one of the opposite surfaces of the semiconductor die received in the nest of the lead frame, wherein the lead frame 16 extends along a longitudinal axis and has two laterally spaced rails bridged by the strap 26a; a drain electrode 20 attached to the other surface of the silicon die; and a housing (not illustrated, see column 3, lines 55-57) molded over and protecting the lead frame and the silicon die.

Fillion does not disclose that the drain electrode 20 formed on the other surface of the semiconductor die 12 is exposed and flush with a bottom surface of the housing.

However, Kasem (Figs. 4A – 4B) teaches a semiconductor package having a drain electrode 72a attached to the other surface of the semiconductor die 62, exposed and flush with a bottom surface of the housing 74. Accordingly, it would have been obvious to have the drain electrode 20 of Fillion being exposed and flush with the bottom surface of the housing for the purpose of providing a large electrical and thermal contact area for attachment to the printed circuit board, as taught by Kasem (column 7, lines 31-37).

With respect to claims 4-5 and 11, Fillion's Fig. 5 further discloses a gate electrode strap 18 spaced laterally inwardly from the rails and spaced axially from the lateral strap 26a, the gate electrode strap 18 and the elongated sides 16

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having respective bottom surfaces which are coplanar with one another and with the drain electrode 20 of the semiconductor die.

With respect to claims 9-10, Fillion's Fig. 5 further discloses that each of the elongated rails 16 is continuous (claim 9). Therefore, it would have been obvious to form the elongated rails 16 being segmented (claim 10) since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together or vice versa involves only routine skill in the art.

Howard v. Detroit Stove Works, 150 U.S. 164 (1893).

With respect to claims 6-8, Kasem teaches that the solder bumps, conductive epoxy or polyimide tape can be used for providing the electrical contact between the strap and the source electrode because they all are well known electrical conductive, adhesive material (column 4, lines 9-16).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (703) 308-4917. The examiner can normally be reached on Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

PC  
June 29, 2003

  
PHAT X. CAO  
PRIMARY EXAMINER